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ROOF PROTECTION SYSTEMS FOR HIGH WIND ZONES

BACKGROUND OF THE INVENTION

Building structures are often severely damaged when exposed to high-wind conditions, such as those associated with hurricanes and tornados. For example, high winds often strip shingles from the roofs of residential homes to expose a roof understructure that is vulnerable to rain damage. Accordingly, there is a need for improved apparatuses and methods for protecting the roofs of building structures from storm conditions.

SUMMARY OF THE INVENTION

A protective roof cover according to one embodiment of the invention comprises a membrane that is adapted to cover at least a portion of the roof of a building structure, such as a house. In one embodiment of the invention, the membrane is adapted to extend from a first edge of the roof to a second edge of the roof. In one embodiment, the first edge is a front edge of the roof and the second edge is a rear edge of the roof. In another embodiment, the first edge is a first side edge of the roof and the second edge is a second side edge of the roof. In a particular embodiment of the invention, the second edge is substantially parallel to, and offset from, the first edge. In various embodiments of the invention, the roof cover may comprise, for example, shrink wrap material or stretch wrap material.

In a particular embodiment of the invention, the membrane is adapted to extend over one or more of the roof's edges and, optionally, to be secured into place adjacent the roof via a girdle member. In one embodiment of the invention, the girdle member wraps substantially around the entire perimeter of the building structure.

In various embodiments of the invention, the membrane comprises a plurality of strips that are optionally positioned so that they are substantially parallel to each other. In a particular embodiment of the invention, the membrane is adapted to extend from a front edge of the roof, over a ridge of the roof, and to a rear edge of the roof.

In one embodiment of the invention, the roof cover is adapted for substantially covering a gable portion of the roof. In this embodiment of the invention, the membrane optionally comprises two or more elongate, substantially parallel lengths of material that are adapted for positioning adjacent the gable portion to at least partially shield the gable portion from wind. In one embodiment of the invention, the parallel lengths of material are positioned so that they are substantially horizontal.

A method of protecting a roof from high winds according to one embodiment of the invention comprises the steps of: (1) providing a roof cover that is adapted to prevent one or more shingles from being detached from the roof during high winds; and (2) covering substantially the entire upper surface of the roof with the roof cover. In one embodiment of the invention, the roof cover is adapted to urge the one or more shingles toward an understructure of the roof and thereby prevent the shingles from being blown from the roof during high wind conditions.

In a particular embodiment of the invention, the roof cover comprises a first end, a second end, and an intermediate portion disposed between the first and second ends of the roof cover, and the step of covering substantially the entire upper surface of the roof with the roof cover comprises: (A) positioning the first end of the roof cover so that the first end of the roof cover extends over a first edge of the roof and so that the first end of the roof cover is held in place adjacent

that first edge; (B) pulling the roof cover so that the intermediate portion of the roof cover is placed into tension; and (C) while the roof cover is in tension, positioning the second end of the roof cover so that the second end of the roof cover extends over a second edge of the roof and so that the second end of the roof cover is held in place adjacent the second edge. In this embodiment of the invention, the roof cover may comprise, for example, shrink wrap or stretch wrap.

In one embodiment of the invention, the step of covering substantially the entire upper surface of the roof with the roof cover comprises: (A) positioning the roof cover so that it extends between a first edge of the roof and a second edge of the roof; and (B) applying heat to the roof cover until the roof cover shrinks and thereby attaches adjacent the roof. A heat gun or any other appropriate heat source may be used to apply heat to the roof cover.

In one embodiment of the invention, the step of covering substantially the entire upper surface of the roof with the roof cover comprises wrapping the roof cover, in a substantially spiral pattern, around the roof.

In a particular embodiment of the invention, the method of protecting a roof from high winds includes the steps of: (1) covering at least a portion of the roof with a first membrane; and (2) covering at least a portion of the roof with a second membrane that at least partially overlaps the first membrane.

In one embodiment of the invention, the step of covering substantially the entire upper surface of the roof with the roof cover comprises: (1) covering substantially the entire upper surface of the roof with a first membrane; and (2) covering substantially the entire upper surface of the roof with a second membrane that at least partially overlaps the first membrane. The first and/or the second membrane may comprise one or more substantially parallel strips of material. In one embodiment of the invention, the strips of material that make up the first membrane are positioned so that they are substantially perpendicular to the strips of material that make up the second membrane.

In one embodiment of the invention, the step of covering substantially the entire upper surface of the roof with the roof cover comprises covering at least a portion of the roof with a third membrane that at least partially overlaps the first

and second membranes. In a particular embodiment of the invention: (1) the first membrane comprises a first plurality of substantially parallel strips of material; (2) the second membrane comprises a second plurality of substantially parallel strips of material; (3) the third membrane comprises a third plurality of substantially parallel strips of material; (4) the first plurality of strips is substantially parallel to the third plurality of strips; and (5) the first plurality of strips is substantially perpendicular to the second plurality of strips.

In one embodiment of the invention, the step of covering substantially the entire upper surface of the roof with the roof cover comprises a step of unrolling the roof cover onto the roof from a roll. A user may optionally use a roller (e.g., an extendable roller) to support the roll as the roof cover is unrolled onto the roof from the roll.

BRIEF DESCRIPTION OF THE DRAWINGS

Having thus described the invention in general terms, reference will now be made to the accompanying drawings, which are not necessarily drawn to scale, and wherein:

Figure 1 is a perspective view depicting the installation of a roof cover according to one embodiment of the invention.

Figure 2A is a perspective view of a front edge of a roof, and a roof cover according to one embodiment of the invention that is positioned to overlap the front edge of the roof. In this embodiment, the inherent properties of the roof cover serve to hold the roof cover in place adjacent the roof.

Figure 2B is a perspective view of a front edge of a roof, and a roof cover according to another embodiment of the invention that is positioned to overlap the front edge of the roof. In this embodiment, water resistant tape is used to hold the roof cover in place adjacent the roof.

Figure 3 is a perspective view of a multi-layered roof cover according to one embodiment of the invention. In this figure, the roof cover comprises two membranes.

Figure 4 is a perspective view of a spirally wrapped roof cover according to a particular embodiment of the invention.

Figure 5 depicts a roof cover installation kit according to one embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

The present invention will now be described more fully hereinafter with reference to the accompanying drawings, in which some, but not all, embodiments of the invention are shown. Indeed, these inventions may be embodied in many different forms and should not be construed as limited to the embodiments set forth herein. Rather, these embodiments are provided so that this disclosure will satisfy applicable legal requirements. Like numbers refer to like elements throughout.

Figure 1 is a perspective view depicting the installation of a roof cover **100** according to one embodiment of the invention adjacent the roof **15** of a

building structure **10** (such as a house or other building). The roof cover **100** is configured to protect the roof **15** from weather conditions (such as high winds) produced by a storm, especially a severe storm such as a hurricane. The building structure **10** includes a roof **15**, and one or more vertical walls **28** that are adjacent the roof **15**. In one embodiment of the invention, the one or more vertical walls **28** support the roof **15**.

As shown in Figure 1, in one embodiment of the invention, the roof **15** includes: (1) a front roof edge **17**; (2) a rear roof edge **19** that is spaced apart from and substantially parallel to the front roof edge **17**; (3) a first side roof edge **21** that is substantially perpendicular to the front and rear roof edges **17, 19**; and (4) a second side roof edge **23** that is spaced apart from and substantially parallel to the first side roof edge **21**. The roof **15** further includes a ridge **25**. In the embodiment of the invention shown in Figure 1, the ridge **25** extends substantially parallel to, and is positioned between, the front and rear roof edges **17, 19**.

In the embodiment of the invention shown in Figure 1, the roof **15** also includes a first gable portion **26** adjacent the first side roof edge **21** and a second gable portion (not shown) adjacent the second side roof edge **23**. As may be understood from Figure 1, in one embodiment of the invention, each gable portion is a substantially vertical portion of at least one vertical wall that is immediately adjacent, and at least partially defined by, a peaked portion of the roof **15**. The first gable portion **26** and second gable portion (not shown) are preferably adjacent opposite ends of the roof's ridge **25** and are each disposed immediately adjacent the ridge **25**.

In one embodiment of the invention, the roof **15** is comprised of a roof subsurface that is covered at least partially by roof surface materials such as shingles, tiles, or wood shake materials. As noted above, these materials are often damaged by inclement weather conditions (such as high winds) that are associated with violent storms. For example, the high winds associated with a hurricane may strip shingles from the roof of a residential home.

In various embodiments of the invention, a protective roof cover **100, 200, 250, 300** is provided to protect the roof **15, 211, 261, 311** from such weather

conditions. As may be understood from Figure 1, in one embodiment of the invention, the protective roof cover **100, 200, 250, 300** comprises at least one membrane that, when installed adjacent the roof **15**, covers at least a portion of the roof **15**. In the embodiment of the invention shown in Figure 1 (which shows the membrane partially installed on the roof **15** of a building structure **10**), the membrane is comprised of a plurality of membrane strips **33, 35**, that may, for example, be positioned so that they are parallel to each other.

In one embodiment of the invention, the membrane extends from a first edge (e.g., a side or front edge) of the roof **15, 211, 261, 311** to a second edge (e.g., a side or rear edge) of the roof **15, 211, 261, 311**. In a particular embodiment of the invention, the membrane extends between first and second side edges **21, 23** of the roof, the first and second side edges being substantially parallel to each other. In this embodiment of the invention, the membrane also preferably extends between the front and rear edges **17, 19** of the roof **15**. In a particular embodiment of the invention, the front and rear roof edges **17, 19** are substantially parallel to each other. In addition, in one embodiment, the front and rear roof edges **17, 19** are substantially perpendicular to the first and second side edges **21, 23**.

As may be understood from Figure 1, in one embodiment of the invention, the roof cover **100** is installed on a roof **15** that comprises a first substantially planar roof portion **50** and a second substantially planar roof portion **52**, both the first and the second roof portions having an upper roof surface. In one embodiment, the first and second roof portions **50, 52** are connected by a ridge portion **25** disposed between the first and second roof portions **50, 52**. In addition, in one embodiment, the first and second roof portions **50, 52** form an angle less than 170 degrees. In a particular embodiment of the invention, the roof cover **100** is adapted for covering substantially the entire upper roof surface of the first roof portion **50**. In one embodiment, the roof cover **100** is also adapted for covering substantially the entire upper roof surface of the second roof portion **52**.

Figure 2A shows how a roof cover **200** according to one embodiment of the invention is attached adjacent the front edge **216** of a roof **211**. In this

embodiment of the invention, the roof cover **200** comprises a plurality of membrane strips **233, 235**. In this embodiment, the membrane strips **233, 235** have inherent physical properties that allow them to cling to other materials without fasteners. In one embodiment of the invention, the membrane strips **233, 235** are comprised of stretch wrap material. As may be understood from Figure 2A, the membrane strips **233, 235** may be attached adjacent the roof **211** by stretching the membrane strips **233, 235** over an edge (e.g., the front edge **216**) of the roof **211** and then pressing the membrane strips **233, 235** against the bottom surface of the roof's front edge **216** and against a vertical wall **218** adjacent the roof **211**. The ends of the membrane strips **233, 235** may then be secured in place adjacent the vertical wall **218** with fasteners or, as discussed in greater detail below, with a girdle member, such as the girdle member **330** shown in Figure 3.

Figure 2B also shows how a roof cover **250** according to one embodiment of the invention is attached adjacent the front edge **216** of a roof **261**. In this embodiment of the invention, the roof cover **250** comprises a plurality of membrane strips **270, 272**. These membrane strips **270, 272** do not have inherent physical properties that allow them to cling substantially to other materials without fasteners. In one embodiment of the invention, the membrane strips **270, 272** are comprised of plastic sheeting. As may be understood from Figure 2B, the membrane strips **270, 272** may be attached adjacent the roof **261** by stretching the membrane strips **270, 272** over an edge (e.g., the front edge **216**) of the roof **261** and then pressing the membrane strips **270, 272** against a vertical wall **218** adjacent the roof **261**. The ends of the membrane strips **270, 272** may then be secured in place adjacent the vertical wall **282** with fasteners or strips of tape (such as water resistant tape) **276**. The ends of the strips may then be further secured in place via a girdle member **330**, such as the girdle member **330** shown in Figure 3.

As noted above, in one embodiment of the invention, the roof cover **300** is attached to the roof via a girdle member **330** (See Figure 3). More particularly, in this embodiment, the roof cover **300** is positioned so that the roof cover **300** extends over at least one of the side edges of the roof, and preferably so that it

extends over at least two side edges of the roof. In a particular embodiment of the invention, the roof cover **300** extends over either the front edge of the roof, the rear edge of the roof, or over both the front edge and the rear edge of the roof.

In a particular embodiment of the invention shown in Figure 3, after the roof cover **300** is positioned so that it extends over one or more edges of the roof **311**, a girdle member **330** (which may be, for example, a length of stretch wrap or shrink wrap or other suitable material), is positioned so that it extends between the first and second side edges **340, 342** of a vertical wall **312** that is adjacent the roof **311**, and so that the girdle member **330** traps, between the girdle member **330** and the vertical wall **312**, a portion of the roof cover **300** that extends over at least one of the roof's edges. In one embodiment of the invention, the girdle member **330** is placed in tension so that urges a portion of the roof cover **300** into frictional engagement with the vertical wall **312**, and thereby restricts the movement of the roof cover **300** relative to the roof **311**. In a particular embodiment of the invention, the girdle member **330** exerts an inward force on the roof cover **300** that is sufficient to hold the roof cover **300** in place adjacent the roof **311** in the presence of high winds.

In a particular embodiment of the invention, the girdle member **330** is wrapped around substantially the entire perimeter of the building structure **350**. Furthermore, in one embodiment of the invention, when the girdle member **330** is in place adjacent the roof **311**, the girdle member **330** is preferably substantially horizontal to at least one edge of the roof **311**.

The roof cover may be made of any suitable material. For example, in various embodiments of the invention, the roof cover **100, 200, 250, 300** is made of one or more of the following types of material: shrink wrap material, stretch rap material, tarpaulin material, plastic sheeting, nylon, Gortex™, rubber sheeting, or any other suitable material. In one embodiment, the roof cover **100, 200, 250, 300** is comprised of one or more substantially flat sheets of material.

Also, in one embodiment of the invention, the roof cover **100, 200, 250, 300** is comprised of at least one sheet of material that is substantially impermeable to water and/or substantially impermeable to wind. In an alternative

embodiment of the invention, the roof cover is comprised of material that includes one or more ventilation openings that allow wind and rain to pass through the roof cover **100, 200, 250, 300** while the roof cover maintains the roofing materials that make up the roof (e.g., shingles or tiles) in place adjacent the substructure of the roof. This serves to reduce the force exerted on the roof cover **100, 200, 250, 300** by high winds passing adjacent the roof cover and, thus, decreases the chances that the roof cover **100, 200, 250, 300** will be blown from the roof by high winds.

As may be understood, for example, from Figures 1, 2A, and 2B, in various embodiments of the invention, the roof cover **100, 200, 250, 300** is comprised of a plurality of elongate membrane strips **33, 35, 233, 235, 270, 272,** at least two of which are substantially parallel to each other. In one embodiment of the invention, at least two of the membrane strips **33, 35, 233, 235, 270, 272** at least partially overlap. This helps to prevent wind and/or rain from passing between the strips of material. In one embodiment of the invention, the membrane strips **33, 35, 233, 235, 270, 272** overlap by one to four inches.

As may be understood from Figure 3, in a particular embodiment of the invention in which the roof cover **300** comprises a plurality of elongate membrane strips **362, 364, 372, 374,** one or more membrane strips (e.g., membrane strips **362, 364**) are positioned so that they extend between, and are substantially perpendicular to, a first and a second side edge of the roof **311**. In another embodiment of the invention, one or more membrane strips (e.g., membrane strips **372, 374**) are positioned so that they extend between, and are substantially perpendicular to, a front and a rear edge of the roof **311**. In this embodiment of the invention, the membrane strips **372, 374** preferably extend from the front edge of the roof, over the roof's ridge **314**, and to the rear edge of the roof **311**. As noted above, the various membrane strips may also extend over the front, rear, and/or side edges of the roof **311** to facilitate attaching the strips adjacent the roof **311** (e.g., via a girdle member **330**).

As may be understood from Figure 3, in one embodiment of the invention, the roof cover **300** comprises a plurality of membranes **331, 332** (each comprising a plurality of substantially parallel membrane strips **362, 364, 372, 374**) that at

least partially overlap each other. This may serve, for example, to increase the strength of the roof cover **300** and to enhance the ability of the roof cover **300** to protect the roof **311** from inclement weather conditions, such as high winds. In a particular embodiment of the invention, the roof cover **300** comprises a first membrane **331** that covers substantially the entire roof, and a second membrane **332** that at least partially overlaps the first membrane **331** and that also covers substantially the entire roof **311**. In one embodiment, the roof cover **300** further comprises a third membrane (not shown in Figure 3) that at least partially overlaps the first and second membranes and that also covers substantially the entire roof.

In various embodiments of the invention, one or more of the first, second, and third membranes may be comprised of a plurality of strips of material as described in detail above. In one embodiment, the first membrane comprises a first plurality of substantially parallel strips of material, the second membrane comprises a second plurality of substantially parallel strips of material, and the third membrane comprises a third plurality of substantially parallel strips of material. In a particular embodiment, the first plurality of strips of material is substantially perpendicular to the second plurality of strips of material. In addition, in one embodiment of the invention, the third plurality of strips of material is substantially parallel to the first plurality of strips of material.

Related Installation Equipment

As may be understood from Figures 1 and 5, to facilitate the installation of the membrane strips **33**, **35** adjacent the roof **15**, the various membrane strips **33**, **35** may be manufactured in the form of membrane rolls **37**, **520** and a roller **40**, **540** may be used to unroll the membrane strips **33**, **35** directly onto the roof **15**. As may be understood from Figure 5, in one embodiment of the invention, the membrane roll **520** includes a hollow tube **530** that defines a central, preferably elongate, opening. When the roll **520** is manufactured, the membrane **510** is wrapped around the hollow tube **530** so that the membrane **510** forms a multi-layered, substantially spherical encasement around the hollow tube **530**.

This allows users to smoothly pull flat strips of membrane from the membrane roll **520** as the hollow tube **530** rotates to release the membrane **510** from the membrane roll **520**.

In a particular embodiment of the invention, the roller **540** includes an elongate roll-support member **550** that is rotatably attached adjacent an elongate shaft **560**. In one embodiment of the invention, the roll-support member **550** is positioned substantially perpendicular to the elongate shaft **560**.

To place a membrane roll **520** onto the roller **540**, a user simply slides the roll-support member **550** into the elongate opening defined by the membrane roll's hollow tube **530**. In a preferred embodiment of the invention, the roll-support member **550** and the membrane roll **520** are dimensioned so that, when the roll-support member **550** is positioned within the elongate opening, the membrane roll **520** is maintained in place on the roll-support member **550** via frictional forces between the roll-support member **550** and the interior of the membrane roll **520**. In one embodiment of the invention, the roll-support member **550** and the membrane roll **520** are substantially the same length (preferably between one and four feet).

Once the membrane roll **520** is positioned onto the roll-support member **550**, a user may use the "loaded" roller to apply a strip of membrane to a roof by first pulling an end of the membrane away from roll-support member and then attaching the end of the membrane (e.g., via tape or the membrane's natural properties) adjacent a portion of the roof. The user may then move the roller away from the attached end. As the roller moves away from the attached end, a strip of membrane will roll smoothly off of the roller adjacent the roof surface.

Installation

The installation of a roof cover according to a particular embodiment of the invention will now be described. As will be understood by one skilled in the art in light of this disclosure, the roof cover may be installed in a variety of different ways using differing numbers of installers. The example below, which

is described in regard to the embodiment of the invention shown in Figure 1, describes an installation that is performed by three installers **5**, **6**, **7**.

Turning again to Figure 1, in one embodiment of the invention, before installing the roof cover **100**, a first installer **5** moves onto a ladder (not shown) adjacent a first edge (e.g., front edge **17**) of the roof **15**, and a second installer **6** moves onto a ladder adjacent a second edge (e.g., the rear edge **19**) of the roof **15**. The second edge of the roof is preferably substantially parallel to, and offset from, the first edge of the roof. A third installer **7** then moves onto the top of the roof **15**.

Next, the first installer **5** picks up a roller assembly **40** (i.e., a roller that onto which a membrane roll has been loaded), withdraws a short length of membrane **33**, **35** from the roller assembly **40**, and tapes the end of the membrane **33**, **35** to a wall of the building structure **10** about two to four feet below the roof **15**. The first installer **5** then hands the roller assembly **40** to the third installer **7** who moves the roller assembly **40** substantially perpendicular to the first roof edge **17** toward the second roof edge **19**. As this is done, membrane rolls smoothly off of the roller assembly **40** to form a membrane strip **33**, **35** that is substantially perpendicular to the first roof edge **17**. In one embodiment of the invention, the third installer **7** rolls the roller assembly **40** along the roof surface while moving the roller assembly **40** perpendicular to the first roof edge **17** toward the second roof edge **19**. This provides for a smooth application of a first membrane strip **33** adjacent the roof **15**.

After the third installer **7** reaches the second edge **19** of the roof **15**, the third installer **7** hands the roller assembly **40** to the second installer **6** who moves the roller assembly **40** downwardly relative to the second edge **19** of the roof **15**. The second installer **6** then cuts the first membrane strip **33** so that the first membrane strip **33** extends approximately two to six feet over the second edge **19** of the roof **15**, and secures the cut end of the first membrane strip **33** relative to a wall (e.g., a vertical wall) adjacent the second edge of the roof **19**. The second installer **6** may secure the cut end of the first membrane strip **33** to the wall by using a fastener such as tape, nails, clips, clamps, or any other appropriate

fastening device. Alternatively, the inherent properties of the membrane may be used to secure the first membrane strip **33** to the wall.

After the leading end of the first membrane strip **33** has been secured to the wall, the second installer **6** withdraws a short length of membrane (which serves as the beginning of a second membrane strip **35**) from the roller assembly **40**, and positions the length of membrane as shown in Figure 1 so that a lateral side portion of the second membrane strip **35** overlaps a corresponding lateral side portion of the first membrane strip **33**. The second installer **6** then tapes the end of the membrane to a wall of the building structure **10** about two to four feet below the roof **15**. The second installer **6** then hands the roller assembly **40** to the third installer **7** who moves the roller assembly **40** perpendicular to the second roof edge **19** toward the first roof edge **17**. As this is done, the membrane rolls smoothly off of the roller to form a membrane strip **35** that is perpendicular to the second roof edge **19**. In one embodiment of the invention, the third installer **7** rolls the roller assembly **40** along the roof surface while moving the roller assembly **40** toward, and perpendicular to, the first roof edge **17**. This provides for a smooth application of the membrane adjacent the roof **15**.

After the third installer **7** reaches the first edge **17** of the roof **15**, the third installer **7** hands the roller assembly **40** to the first installer **5** who moves the roller assembly **40** downwardly relative to the first edge **17** of the roof **15**. The first installer **5** then cuts the membrane so that the second membrane strip **35** extends approximately two to six feet over the first edge **17** of the roof **15**, and secures the cut end of the second membrane strip **35** relative to a wall (e.g., a vertical wall) adjacent the first edge **17** of the roof **15**. The first installer **5** may secure the cut leading end of the second membrane strip **35** to the wall by using a fastener such as tape, nails, clips, clamps, or any other appropriate fastening device. Alternatively, the inherent properties of the membrane may be used to secure the membrane to the wall.

In one embodiment of the invention, the above process is repeated until substantially the entire surface (and preferably the entire surface) of the roof **15** is

covered with a first membrane (which, in one embodiment, is comprised of various, substantially parallel, strips of membrane as discussed above).

In one embodiment of the invention (e.g., the embodiment of the invention shown in Figure 1), the first and second roof edges are, respectively, front and rear edges **17**, **19** of the roof **15**, and the installers **5**, **6**, **7** begin the process by installing the first strip of membrane **33** immediately adjacent a first side edge **21** of the roof **15**. The installers **5**, **6**, **7** then install various strips of material (working laterally away from the first side edge **21**) until they reach a second side edge **23** of the roof **15**. In one embodiment of the invention, the front and rear edges **17**, **19** of the roof **15** are substantially parallel to and offset from each other and the first and second side edges **21**, **23** are also substantially parallel to and offset from each other and substantially perpendicular to the front and rear edges **17**, **19** of the roof **15.**

In one embodiment of the invention, after the first membrane has been installed relative to the roof, the installers install a second membrane on top of the first membrane. As shown in Figure 3, in a particular embodiment of the invention, this second membrane is installed in much the same manner as the first membrane except that the individual membrane strips that make up the second membrane (e.g., membrane strips **362**, **364**) extend between the first and second side walls of the roof **211**. In a particular embodiment of the invention, the plurality of membrane strips that make up the first membrane (e.g., membrane strips **372**, **374**) are positioned so that they are perpendicular to the plurality of membrane strips that make up the second membrane (e.g., membrane strips **362**, **364**). In this embodiment of the invention, the second membrane may be understood to overlap the first membrane.

In a particular embodiment of the invention, after the second membrane has been installed relative to the roof, the installers install a third membrane on top of the second membrane. In one embodiment of the invention, this third membrane is installed in much the same manner as the first membrane. In a particular embodiment of the invention, the plurality of membrane strips that make up the third membrane are positioned so that they are parallel to the

membrane strips that make up the first membrane. In this embodiment of the invention, the third membrane may be understood to overlap both the second and the first membrane.

In one embodiment of the invention, the second membrane entirely overlaps the entire first membrane. However, in other embodiments of the invention, the second membrane may overlap only a portion of the first membrane.

Similarly, in one embodiment of the invention, the third membrane entirely overlaps the entire second membrane. However, in other embodiments of the invention, the third membrane may overlap only a portion of the second membrane.

In addition, although the first and second membranes are described above as being positioned so that the membrane strips that make up the second membrane are substantially perpendicular to the membrane strips that make up the first membrane, the first and second membranes may alternatively be positioned so that the membrane strips that make up the second membrane are positioned so that they form one or more of the following ranges of angles with the membrane strips that make up the first membrane: (1) less than 80 degrees; (2) less than 60 degrees; (3) less than 45 degrees; (4) less than 30 degrees; (5) less than 15 degrees; or (3) less than 2 degrees.

Similarly, although the second and third membranes are described above as being positioned so that the membrane strips that make up the third membrane are substantially perpendicular to the membrane strips that make up the second membrane, the second and third membranes may alternatively be positioned so that the membrane strips that make up the third membrane are positioned so that they form one or more of the following ranges of angles with the membrane strips that make up the second membrane: (1) less than 80 degrees; (2) less than 60 degrees; (3) less than 45 degrees; (4) less than 30 degrees; (5) less than 15 degrees; or (3) less than 2 degrees.

In addition, although the roof cover is described above as comprising one to three membranes, it may include more membranes. For example, in various

embodiments of the invention, the roof cover comprises four, five, six, seven, eight or more overlapping membranes.

In one embodiment of the invention, once all of the various membranes that make up the roof cover are positioned adjacent the roof surface, the membranes are secured adjacent the roof in the manner described above via a girdle member. Alternatively, each individual membrane is secured in place via a girdle member substantially immediately after that individual membrane is positioned adjacent the roof. Alternatively, a group of two or more membranes may be secured in place via a girdle member at one time substantially immediately after that group of membranes is positioned adjacent the roof.

As noted above, in one embodiment of the invention, one or more of the membrane strips that comprise one or more of the membranes comprises a stretch wrap material (e.g., high-strength cellophane) that is adapted to be stretched between two or more ridges and to cling to those ridges due to the inherent frictional properties of the stretch wrap material and the tension within the stretched portion of the stretch wrap material. In one embodiment of the invention, the stretch wrap material is stretched between two or more edges of the roof and held in place relative to the roof by the inherent clinging properties of the stretch wrap material.

In a particular embodiment of the invention, the individual strips of stretch wrap material extend from a first edge of the roof to a second edge of the roof, but do not extend substantially over the first or the second edge of the roof. In other embodiments of the invention, the individual strips of stretch wrap material extend over the first and/or second edges of the roof as discussed above, and may optionally be held in place relative to the building structure via a girdle member.

In light of the above, a method according to one embodiment of the invention comprises: (A) positioning a first end of at least a portion of a roof cover so that this first end extends over a first edge of a roof and so that the first end is held in place adjacent the first edge; (B) pulling the roof cover so that an intermediate portion of the roof cover is placed into tension; and (C) positioning the second end of the roof cover so that the second end of the roof cover extends

over a second edge of the roof and so that the second end of the roof cover is held in place adjacent the second edge. In one embodiment of the invention, the step of positioning the second end is executed while the intermediate portion of the roof cover is in tension.

As noted above, in one embodiment of the invention, the roof cover comprises shrink wrap material that is configured to shrink in response to being exposed to heat. A method of applying such a roof cover according to one embodiment of the invention comprises: (A) positioning a first end of at least a portion of a roof cover so that the first end extends adjacent (and preferably over) a first edge of a roof and so that the first end is held in place adjacent the first edge; (B) positioning the second end of the roof cover so that the second end of the roof cover extends adjacent (and preferably over) a second edge of the roof and so that the second end of the roof cover is held in place adjacent the second edge; and (C) using a heat source to apply heat to the roof cover until the roof cover shrinks and thereby is secured adjacent the roof. In one embodiment of the invention, a heat gun is used to apply heat to the roof.

In regard to various embodiments of the invention in which individual membranes comprise a plurality of membrane strips (e.g., substantially parallel membrane strips), it should be understood that the strips may be secured in place relative to each other by taping the membrane strips to each other and/or to the surface of the roof. Alternatively, the membrane strips may be attached to each other or the surface of the roof via fasteners such as tacks, screws, or nails. In addition, in one embodiment of the invention, the membrane strips may comprise a tacky material (such as cling wrap) and, as a result, may stick to other membrane strips without fasteners.

Furthermore, although various embodiments of the invention in which individual membranes comprise a plurality of membrane strips are described above as having overlapping membrane strips (e.g., the side edges of two or more of the membrane strips that form a particular membrane overlap), in an alternative embodiment of the invention, the side edges of the strips do not overlap

substantially. In one such embodiment of the invention, the strips are laid side by side and are attached together by lengths of tape.

It should also be understood that, in one or more embodiments of the invention, one or more membranes extend adjacent the roof's gable portion to at least partially shield the gable portion from wind (see, for example, Figure 3). In one embodiment of the invention, one or more of the membranes substantially cover the gable portion. Also, in a particular embodiment of the invention, at least a portion of a membrane covering the gable portion comprises a plurality of substantially parallel membrane strips that are positioned, for example, so that they are substantially vertical (as shown in Figure 3) or substantially horizontal.

As shown in Figure 4, in one embodiment of the invention, a membrane **420** is spirally wrapped about the roof structure **411**. For example, in one embodiment of the invention, the membrane **420** is wrapped spirally about the roof structure **411** until substantially the entire roof surface **411** is covered with the membrane **420** and preferably substantially sealed against wind and/or rain. In one embodiment of the invention, the membrane **420** comprises an elongate strip of membrane **420** that is wrapped spirally around the roof structure **411** to form a plurality of at least partially overlapping, substantially circular, courses **420** that encircle the roof structure **411**. In one embodiment of the invention, these courses **420** extend between at least one edge of the roof (e.g., a front edge **417**) and the roof's ridge **414**. The winding of the flexible membrane **420** may proceed in either a clockwise or a counterclockwise direction. Furthermore, spiral winding may extend from one or more edges of the roof (e.g., front edge **417**) to the roof's ridge **414**, or from the ridge of the roof **414** to one or more of the roof's edges (e.g., front edge **417**).

Advantageously, the above-described preferred embodiments of the present invention may be sold to retail consumers as part of an improved protective roof wrap kit. A preferred kit in accordance with one embodiment of the present invention is illustrated in Figure 5 and includes at least one roof membrane supply roll **520**, at least one roll of water-resistant tape **580**, a roller **540** (e.g., an extendable roller), and optionally a knife or cutting blade **590**.

Use of the Invention

One intended use of one embodiment of the present invention is to provide temporary protection for a roof structure during a predicted storm, such as a hurricane. For example, a user may store a roof protection kit, such as the kit described above, in their home until they receive a storm warning (such as a hurricane alert or warning that is broadcast over conventional media sources). In response to receiving the storm warning, the user then uses the kit to temporarily install a roof cover according to one or more of the embodiments of the invention described above. This serves to provide temporary protection for the roof during the predicted storm. After the storm passes, the user may remove the roof cover and, if desired, discard the roof cover. In this sense, one embodiment of the invention is a temporary, single-use roof cover.

Roof covers according to other embodiments of the invention may be used for other purposes, such as for securing roofs during roof repair, or for securing roofs on an extended basis through an entire storm season.

Conclusion

Many modifications and other embodiments of the inventions set forth herein will come to mind to one skilled in the art to which these inventions pertain having the benefit of the teachings presented in the foregoing descriptions and the associated drawings. Therefore, it is to be understood that the inventions are not to be limited to the specific embodiments disclosed and that modifications and other embodiments are intended to be included within the scope of the appended claims. Although specific terms are employed herein, they are used in a generic and descriptive sense only and not for purposes of limitation.